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CASE 1-32546B

#3

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PCT NATIONAL STAGE APPLICATION OF

FRITSCH ET AL.

INTERNATIONAL APPLICATION NO: PCT/EP03/006757

FILED: 26 JUNE 2003

U.S. APPLICATION NO: 10/519,069

35 USC §371 DATE: Not Yet Known

FOR: GENE FOR INCREASED SOMATIC RECOMBINATION

Mail Stop: Amendment

Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Applicants believe this paper is being filed before the mailing date of a first Office action on the merits, and so under 37 C.F.R. §1.97(b)(3) no fees are required. If a fee is deemed to be required, the Commissioner is hereby authorized to charge such fee to Deposit Account No. 19-0134.

In accordance with 37 C.F.R. §1.56, applicants wish to call the Examiner's attention to the references cited on the attached form(s) PTO-1449.

The asterisked (*) references were cited in the International Search Report. Since copies of said references were forwarded by the International Bureau, only copies of the non-asterisked references are enclosed.

The Examiner is requested to consider the foregoing information in relation to this application and indicate that each reference was considered by returning a copy of the initialed PTO 1449 form(s).

Respectfully submitted,

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Attorney for Applicants
Reg. No. 43,019

Date: May 10, 2005

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

ATTY. D. [REDACTED] NO.

1-325468

APPLICATION NO.

10/519,069

APPLICANT

FRITSCH ET AL.

FILING DATE

DECEMBER 22, 2004

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	AA						
	AB						
	AC						
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FOREIGN PATENT DOCUMENTS

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							YES	NO
	AM						<input type="checkbox"/>	<input type="checkbox"/>
	AN						<input type="checkbox"/>	<input type="checkbox"/>
	AO						<input type="checkbox"/>	<input type="checkbox"/>
	AP						<input type="checkbox"/>	<input type="checkbox"/>
	AQ						<input type="checkbox"/>	<input type="checkbox"/>

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

AR	Aguilera, et al., "Genetic control of intrachromosomal recombination in <i>Saccharomyces cerevisiae</i> . I. Isolation and genetic characterization of hyper-recombination mutations", <i>Genetics</i> , Vol. 119, pp. 779-790 (1988)
AS	Albinsky, et al., "Plant responses to genotoxic stress are linked to an ABA/salinity signaling pathway", <i>The Plant J.</i> , Vol. 17, pp. 73-82 (1999)
AT	Aravind, et al., "Conserved domains in DNA repair proteins and evolution of repair systems", <i>Nucleic Acids Res.</i> , Vol. 27, pp. 1223-42 (1999)

EXAMINER

DATE CONSIDERED

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EXAMINER
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

	DA	Betham, et al., "A tool for functional plant genomics: chimeric RNA/DNA oligonucleotides cause in vivo gene-specific mutations", Proc. Natl. Acad. Sci., Vol. 96, pp. 8774-78 (1999)
	DB	Cho, et al., "TIP49b, a regulator of activating transcription factor 2 response to stress and DNA damage", Mol. and Cell. Biology, Vol. 21, pp. 8398-8413 (2001)
	DC	Davies, et al., "Isolation of arabidopsis thaliana mutants hypersensitive to gamma radiation", Mol. Gen., Vol. 243, pp. 660-65 (1994)
	DD	Clough, et al., "Floral dip: a simplified method for Agrobacterium-mediated transformation of Arabidopsis thaliana", The Plant J., Vol. 16, pp. 735-43 (1998)
	DE	Davis, et al., "A presumptive helicase (MOT1 gene product) affects gene expression and is required for viability in the yeast saccharomyces cerevisiae", Mol. and Cell. Biol., Vol. 12, pp. 1879-92 (1992)
	DF	Dilkes, et al., "Cloning genes from T-DNA tagged mutants", Methods in Mol. Biol., Vol. 82, pp. 339-51
	DG	Doutriaux, et al., "Isolation and characterization of the RAD51 and DMC1 homologs from Arabidopsis thaliana", Mol. Gen., Vol. 257, pp. 283-91 (1998)
	DH	Ebbert, et al., "The product of the SNF2/SW12 paralogue INO80 of Saccharomyces cerevisiae required for efficient expression of various yeast structural genes is part of a high molecular weight protein complex", Mol. Micro., Vol. 32, pp. 741-51 (1999)
	DI	Emery, et al., "Sequence of RAD54, a saccharomyces cerevisiae gene involved in recombination and repair", Gene, Vol. 104, pp. 103-6 (1991)
	DJ	Essers, et al, "Homologous and non-homologous recombination differentially affect DNA damage repair in mice", The Embo J., Vol. 19, pp. 1703-10 (2000)
	DK	Fang, et al., "Multiple cis regulatory elements for maximal expression of the cauliflower mosaic virus 35S promoter in transgenic plants", The Plant Cell, Vol. 1, pp. 141-50 (1989)
	DL	Fridborg, et al., "The arabidopsis dwarf mutant shi exhibits reduced gibberellin responses conferred by overexpression of a new putative zinc finger protein", The Plant Cell, Vol. 11, pp. 1019-31 (1999)
	DM	Gallego, et al., "AtRAD1, a plant homologue of human and yeast nucleotide excision repair endonucleases, is involved in dark repair of UV damages and recombination", The Plant J., Vol. 21, pp. 507-18 (2000)
	DN	Gallego, et al., "Positive-negative selection and T-DNA stability in arabidopsis transformation", Plant Mol. Biol., Vol. 39, pp. 83-93 (1999)

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DA	Galli, et al., "Characterization of the hyperrecombination phenotype of the pol3-t mutation of saccharomyces cerevisiae", Genetics, Vol. 164, pp. 65-79 (2003)
DB	Gamborg, et al., "Nutrient requirements of suspension cultures of soybean root cells", Exper. Cell Res., Vol. 50, pp. 151-58 (1968)
DC	Gherbi, et al., "Homologous recombination in planta is stimulated in the absence of Rad50", Embo Reports, Vol. 2, pp. 287-91 (2001)
DD	Gorbunova, et al., "A new hyperrecombinogenic mutant of nicotiana tabacum", Vol. 24, pp. 601-11 (2000)
DE	Gorbalenya, et al, "Helicases: Amino acid sequence comparisons and structure -- function relationships", Current Opin. in Structural Biol., Vol. 3, pp. 4119-29 (1993)
DF	Guerineau, et al., "Sulfonamide resistance gene for plant transformation", Plant Mol. Biol., Vol. 15, pp. 127-36 (1990)
DG	Hanin, et al., "Gene targeting in Arabidopsis", The Plant J., Vol. 28, pp. 671-77 (2001)
DH	Hayashi, et al., "Activation of a plant gene by T-DNA tagging: auxin-independent growth in vitro", Science, Vol. 258, pp. 1350-53 (1992)
DI	Hohn, et al., "Gene therapy in plants", Proc. Natl. Acad. Sci., Vol. 96, pp. 8321-23 (1999)
DJ	Jenkins, et al., "Radiation-sensitive mutants of arabidopsis thaliana", Genetics, Vol. 140, pp. 725-32 (1995)
DK	Ikura, et al., "Involvement of the TIP60 histone acetylase complex in DNA repair and apoptosis", Cell, Vol. 102, pp. 463-73 (2000)
DL	Jelesko, et al., "Rare germinal unequal crossing-over leading to recombinant gene formation and gene duplication in arabidopsis thaliana", Proc. Natl. Acad. Sci., Vol. 96, pp. 10302-07 (1999)
DM	Jiang, et al., "UV- and gamma-radiation sensitive mutants of arabidopsis thaliana", Genetics, Vol. 147, pp. 1401-09 (1997)
DN	Kakimoto, et al., "CKI1, a histidine kinase homolog implicated in cytokinin signal transduction", Science, Vol. 274, pp. 982-85 (1996)

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DA	Jonsson, et al, "Rvb1p and Rvb2p are essential components of a chromatic remodeling complex that regulates transcription of over 5% of yeast genes", J. of Biol. Chem., Vol. 276, pp. 16279-88 (2001)
DB	Kanemaki, et al., "TIP49b, a new RuvB-like helicase, is included in a complex together with another RuvB-like DNA helicase, TIP49a", J. of Biol. Chem., Vol. 274, pp. 22437-44 (1999)
DC	Kardailsky, et al., "Activation tagging of the floral inducer FT", Science, Vol. 286, pp. 1962-65 (1999)
DD	Kipp, et al., "Gene targeting in plants via site-directed mutagenesis", Methods in Mol. Biol., Vol. 133, pp. 213-21
DE	Klimyuk, et al., "AtDMC1, the arabidopsis homologue of the yeast DMC1 gene: characterization, transposon-induced allelic variation and meiosis-associated expression", The Plant J., Vol. 11, pp. 1-14 (1997)
DF	Laurent, et al., "Functional interdependence of the yeast SNF2, SNF5, and SNF6 proteins in transcriptional activation", Proc. Natl. Acad. Sci., Vol. 88, pp. 2687-91 (1991)
DG	Lee, et al., "Homologous recombination in plant cells after agrobacterium-mediated transformation", The Plant Cell, Vol. 2, pp. 415-25 (1990)
DH	Liu, et al, "Repair of UV damage in plants by nucleotide excision repair: arabidopsis UVH1 DNA repair gene is a homolog of saccharomyces cerevisiae Rad 1", The Plant J., Vol. 21, pp. 519-28 (2000)
DI	Masson, et al., "Mutants of arabidopsis thaliana hypersensitive to DNA-damaging treatments", Genetics, Vol. 146, pp. 401-7 (1997)
DJ	Masson, et al., "Arabidopsis thaliana mutants altered in homologous recombination", Proc. Natl. Acad. Sci., Vol. 94 pp. 11731-35 (1997)
DK	Mathur, et al., "Gene identification with sequenced T-DNA tags generated by transformation of arabiopsis cell suspension", The Plant J., Vol. 13, pp. 707-16 (1998)
DL	Mayerhofer, et al., "T-DNA integration: a mode of illegitimate recombination in plants", The Embo J., Vol. 10, pp. 697-704 (1991)
DM	Mengiste, et al., "Prospects for the precise engineering of plant genomes by homologous recombination", Biol. Chem., Vol. 380, pp. 749-58 (1999)
DN	Mengiste, et al., "An SMC-like protein is required for efficient homologous recombination in arabidopsis", The Embo J., Vol. 18, pp. 4505-12 (1999)

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	DA	Miao, et al. "Targeted disruption of the TGA3 locus in arabidopsis thaliana", The Plant J., Vol. 7, pp. 359-65 (1995) +
	DB	Michelet, et al., "Improvement of arabidopsis mutant screens based on luciferase imaging in planta", Plant Mol. Biol. Reporter, Vol. 14, pp. 320-29 (1996)
	DC	Millar, et al., "The regulation of circadian period by phototransduction pathways in arabidopsis", Science, Vol. 267, pp. 1163-66 (1995)
	DD	Millar, et al., "Firefly luciferase as a reporter of regulated gene expression in higher plants", Plant mol. Biol. Reporter, Vol. 10, pp. 324-37 (1992)
	DE	Millar, et al., "Circadian clock mutants in arabidopsis identified by luciferase imaging", Science, Vol. 267, pp. 1161-63 (1995)
	DF	Muchardt, et al., "ATP-dependent chromatin remodeling: SWI/SNF and Co. are on the job", J. Mol. Biol., Vol. 293, pp. 187-98 (1999)
	DG	Muris, et al., "Isolation of the schizosaccharomyces pombe RAD54 homologue, rhp54+, a gene involved in the repair of radiation damage and replication fidelity", J. of Cell Science, Vol. 109, pp. 73-81 (1996)
	DH	Nacry, et al., "Major chromosomal rearrangements induced by T-DNA transformation in arabidopsis", Genetics, Vol. 149, pp. 641-50 (1998)
	DI	Offringa, et al., "Extrachromosomal homologous recombination and gene targeting in plant cells after agrobacterium mediated transformation", The Embo J., Vol. 9, pp. 3077-84 (1990)
	DJ	Paszkowski, et al., "Gene targeting in plants", The Embo J., Vol. 7, pp. 4021-26 (1988)
	DK	Perreten, et al., "Targeted disruption in arabidopsis", Nature, Vol. 389, pp. 802-03 (1997)
	DL	Pruitt, et al., "Characterization of the genome of arabidopsis thaliana", J. Mol. Biol., Vol. 187, pp. 169-83 (1986)
	DM	Puchta, et al., "Somatic intrachromosomal homologous recombination events in populations of plant siblings", Plant Mol. Biol., Vol. 28, pp. 281-92 (1995)
	DN	Puchta, et al., "Induction of intrachromosomal homologous recombination in whole plants", The Plant J., Vol. 7, pp. 203-10 (1995)

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DA	Puchta, "Gene replacement by homologous recombination in plants", Plant Mol. Biol., Vol. 48, pp. 173-82 (2002)
DB	Reiss, et al., "RecA protein stimulates homologous recombination in plants", Proc. Natl. Acad. Sci., Vol. 93, pp. 3094-98 (1996)
DC	Reiss, et al., "Targeting of a functional escherichia coli RecA protein to the nucleus of plant cells", Mol. Gen. Genet., Vol. 253, pp. 695-702 (1997)
DD	Reiss, et al., "RecA stimulates sister chromatid exchange and the fidelity of double-strand break repair, but not gene targeting, in plants transformed by agrobacterium", Proc. Natl. Acad. Sci., Vol. 97, pp. 3358-63 (2000)
DE	Richmond, et al., "Functional Analysis of the DNA-stimulated ATPase domain of yeast SW12/SNF2, Nuc. Acids Res., Vol. 24, pp. 3685-92 (1996)
DF	Schaffer, et al., "The late elongated hypocotyl mutation of arabidopsis disrupts circadian rhythms and the photoperiodic control of flowering", Cell, Vol. 93, pp. 1219-29 (1998)
DG	Shalev, et al., "Stimulation of homologous recombination in plants by expression of the bacterial resolvase RuvC", Proc. Natl. Acad. Sci., Vol. 96, pp. 7398-7402 (1999)
DH	Shen, et al., "A chromatic remodelling complex involved in transcription and DNA processing", Nature, Vol. 406, pp. 541-44 (2000)
DI	Shen, et al., "Modulation of ATP-dependent chromatic-remodeling complexes by inositol polyphosphates, Science, Vol. 299, pp. 112-14 (2003)
DJ	Simon, et al., "The 3' to 5' exonuclease activity located in the DNA polymerase subunit of saccharomyces cerevisiae is required for accurate replication", The Embo J., Vol. 10, pp. 2165-70 (1991)
DK	Sitney, et al., "DNA polymerase III, a second essential DNA polymerase, is encoded by the S. cerevisiae CDC2 gene", Cell, Vol. 56, pp. 599-605 (1989)
DL	Sugino, "Yeast DNA polymerases and their role at the replication fork", TIBS, Vol. 20, pp. 319-323 (1995)
DM	Swoboda, et al., "Intrachromosomal homologous recombination in whole plants", The Embo J., Vol. 13, pp. 484-89 (1994)
DN	Thykjaer, et al., Gene targeting approaches using positive-negative selection and large flanking regions", Plant Mol. Biol., Vol. 35, pp. 523-30 (1997)

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Sheet 7 of 8

Group

EXAMINER
INITIAL

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

DA	Torres-Ramos, et al., "Requirement of Yeast DNA polymerase in post-replicative repair of UV-damaged DNA", J. of Bio. Chem., Vol. 272, pp. 25445-448 (1997)
DB	Travers, "An engine for nucleosome remodeling", Cell, Vol. 96, pp. 311-14 (1999)
DC	Troelstra, et al., "ERCC6, a member of a subfamily of putative helicases, is involved in cockayne's syndrome and preferential repair of active genes", Cell, Vol. 71, pp. 939-53 (1992)
DD	Van Gool, et al, "RAD26, the functional S. cerevisiae homolog of the cockayne syndrome B gene ERCC6", The Embo J., Vol. 13, pp. 5361-69 (1994)
DE	Walden, et al, "Activation tagging: a means of isolating genes implicated as playing a role in plant growth and development:", Plant Mol. Biol., Vol. 26, pp. 1521-28 (1994)
DF	Weigel, et al., "Activation tagging in arabidopsis", Plant Phys., Vol. 122, pp. 1003-13 (2000)
DG	Wilson, et al., "A dissociation insertion causes a semidominant mutation that increases expression of TINY, an arabidopsis gene related to APETALA2", The Plant Cell, Vol. 8, pp. 659-71 (1996)
DH	Wood, et al., "An ATPase/helicase complex is an essential cofactor for oncogenic transformation by c-Myc", Mol. Cell, Vol. 5, pp. 321-30 (2000)
DI	Zhu, et al., "Engineering herbicide-resistant maize using chimeric RNA/DNA oligonucleotides", Nature Biotech., Vol. 18, pp. 555-68 (2000) Zh
DJ	Zhu, et al, "Targeted manipulation of maize genes in vivo using chimeric RNA/DNA oligonucleotides", Proc. Natl. Acad. Sci., Vol. 96, pp. 8768-73 (1999)
DK	*Online, "Arabidopsis thaliana putative helicase mRNA, partial cds", Database accession no. AYO80695
DL	*Online, "Arabidopsis thaliana cDNA clone: RAFL09-38-B21, 5'-end", Database accession no. AV829055
DM	*Online, "Arabidopsis thaliana DNA chromosome 3, BAC clone F2809", Database accession no. AL137080
DN	*Online, "Helicase-like protein F2809.150", Database accessioj no. Q9M2L7

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FORM PTO-1449
(REV. 7-85)

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	DB	*Ebbert, et al., "The product of the SNF2/SW12 paralogue INO80 of saccharomyces cerevisiae required for efficient expression of various yeast structural genes is part of a high-molecular-weight protein complex", Mol. Micro., Vol. 32 (1999)
	DC	*Hassen, et al., "Homologous recombination in plants is stimulated in the absence of Rad50", Embo Reports, Vol. 2 (2001)
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